

Claims

1. A heat exchanger device including a plate heat exchanger (10), wherein the plate heat exchanger includes a plate package of heat transfer plates, which are arranged to form between the plates first passages (18) for a heat transfer medium to be cooled and second passages (19) for a cooling agent, wherein:
 - 5 the plate package includes a first porthole channel (21) and a second porthole channel (22), which communicate with the first passages (18), and a third porthole channel (23) and a fourth porthole channel (24), which communicate with the second passages;
 - 10 the first porthole channel (21) forms at least a part of an inlet channel (31) for supplying the heat transfer medium to the plate heat exchanger;
 - 15 the second porthole channel (22) forms at least a part of an outlet channel (32) for discharging the heat transfer medium from the plate heat exchanger;
 - 20 the third porthole channel (23) forms at least a part of an inlet channel (33) for supplying the cooling agent to the plate heat exchanger;
 - 25 the fourth porthole channel (24) forms at least a part of an outlet channel (34) for discharging the cooling agent from the plate heat exchanger;
- 30 the heat exchanger device includes a conduit (5) extending into the inlet channel (33) for the cooling agent for supplying the cooling agent to the third porthole channel (23) and the second passages,
- 35 characterised in that said conduit (15) includes a conduit portion (6) extending into and out of the outlet channel (34) for the cooling agent in such a way that heat exchange takes place between the cooling agent in said conduit portion (6) and the cooling agent in the outlet channel (34).

2. A device according to claim 1, characterised in that the outlet channel (34) for the cooling agent includes the fourth porthole channel (24) and a pipe (36) which extends outwardly from the fourth porthole channel and the plate package, wherein
5 said conduit portion extends at least into and out of said pipe (36).
3. A device according to claim 2, characterised in that said conduit portion (6) extends into and out of the fourth porthole
10 channel (24).
4. A device according to anyone of the preceding claims,
characterised in that said conduit portion (6) extends in a U-shaped path in the outlet channel (34).
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5. A device according to anyone of the preceding claims,
characterised in that conduit portion (6) includes surface enlarging members (38), which are provided on the conduit portion and extend in the outlet channel (34).
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6. A device according to claim 5, characterised in that said surface enlarging members include flanges (38).
7. A device according to anyone of the preceding claims,
25 characterised in that said conduit portion (6) extends in a path which is significantly longer than the double distance between an entrance position for the entrance of the conduit portion into the outlet channel (34) and a position of the conduit portion located as far as possible from the entrance position.
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8. A device according to anyone of the preceding claims,
characterised in that said conduit portion (6) extends in a zigzag-shaped or helical-shaped path in the outlet channel (34).
- 35 9. A device according to anyone of the preceding claims,
characterised in that said conduit (5) is included in a cooling agent circuit, which includes a compressor (1), a condenser (2),

an expansion valve (3) and an evaporator (4) that includes the plate heat exchanger (10).

10. A device according to claim 9, characterised in that said
5 conduit portion (6) is located between the condenser (2) and the
expansion valve (3).

11. A device according to anyone of the preceding claims,
characterised in that the inlet and outlet channels (31-34) are
10 arranged in such a way that the heat transfer medium flows
through the first passages (18) in a counterflow direction or a
parallel flow direction in relation to the cooling agent in the
second passages (19).